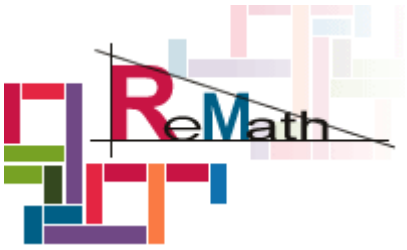

PEDAGOGICAL PLAN MANAGER 1.0

BETA RELEASE

USER GUIDE

ITD-CNR
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Introduction

The Pedagogical Plan Manager is a tool designed for creating, editing and viewing pedagogical plans. To help manage various degrees of complexity in plans, the Manager adopts the notions Hierarchical Pedagogical Plan (HiPP) and Single-Node Pedagogical Plan (SNiPP). It is important to have a clear understanding of the notions HiPP and SNiPP, as these are keys terms adopted throughout the Pedagogical Plan Manager and in the support material.

HiPPs are plans with a tree-like hierarchical structure. This structure is made up of one or more nodes called SNiPPs. Each SNiPP is a pedagogical plan in its own right and may also have its own child SNiPPs. In other words, a SNiPP can be the root node of a HiPP, and a HiPP may embrace part of a plan or the entire plan.

Figure 1 shows three exemplars of HiPP/SNiPP structure.

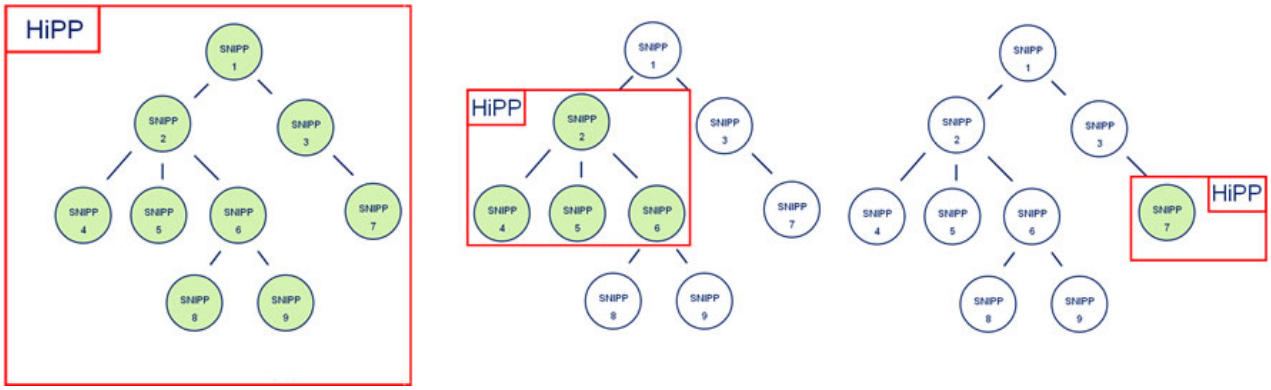


Figure 1

The Pedagogical Plan Manager has an **editing environment** for creating and editing plans, and a **viewing** environment for navigating them.
You can enter these environments simply by clicking on the corresponding buttons on the home page (http://remath.itd.cnr.it) .
The viewer is presently under further development so we suggest you use the WYSIWYG **Editor** for the moment.
This guide explains how to use the beta version Editor, which runs on the Mozilla Firefox browser. Testing of the Pedagogical Plan Manager with other browsers is currently in progress.

An overview

Once in the **Editing environment**, you will find a list of pedagogical plans. The name of the author and the main topics are specified for each plan. To open a plan, simply click on its title and enter the required password (default passwords will be communicated to all the partners).
Figure 2 shows a screenshot of the **Editor** as you will see it.

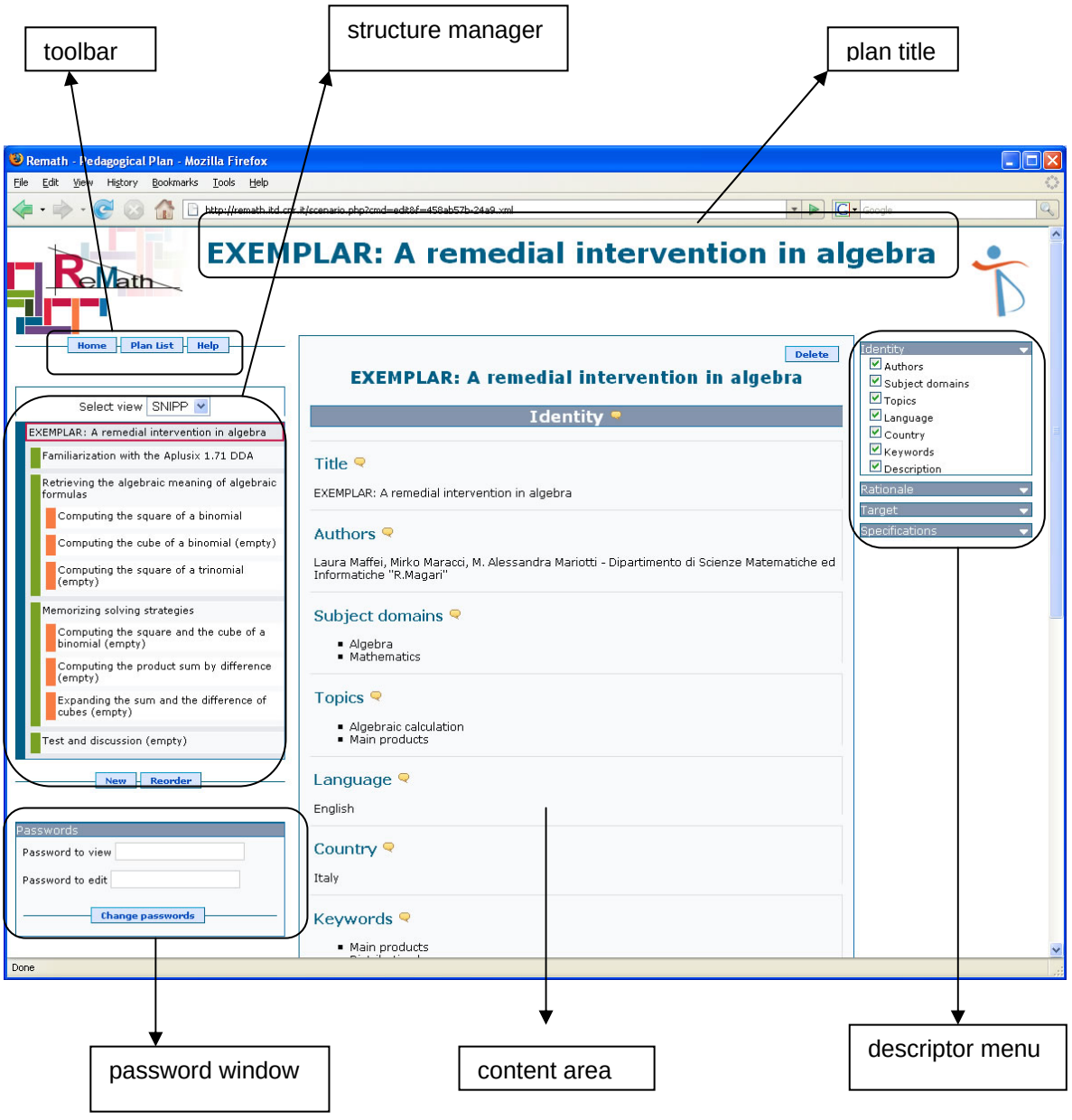


Figure 2

The **Editor** screen is divided into four general areas:

- Top – the banner identifying the plan you have opened;
- Left – the control panel comprising:
  - toolbar (navigation and help);
  - structure manager for viewing and building the structure;
  - password window to set privileges;
- Centre – the content area, where plan data are edited;

- Right – the expandable menu of plan descriptors to set which particular fields or groups of fields you want to edit.

When you open a plan, the Identity descriptors are shown by default in the content area.
The expandable descriptor menu on the right of the screen lets you choose exactly which fields you want to display in the content area at any given time.
The descriptors are grouped into 4 sets (Identity, Rationale, Target, Specification), which in turn are divided into subsets. To open or close a set (or subset) of descriptors, click the white arrow in that set's name bar. To display or hide any descriptor in the content area, click its checkbox in the menu. If you close a (sub)set at a given point in the work session, its status will be retained when you reopen it (Figure 3).
Detailed explanations of the various fields (or set of fields) are provided in the yellow bubbles (Figure 3).

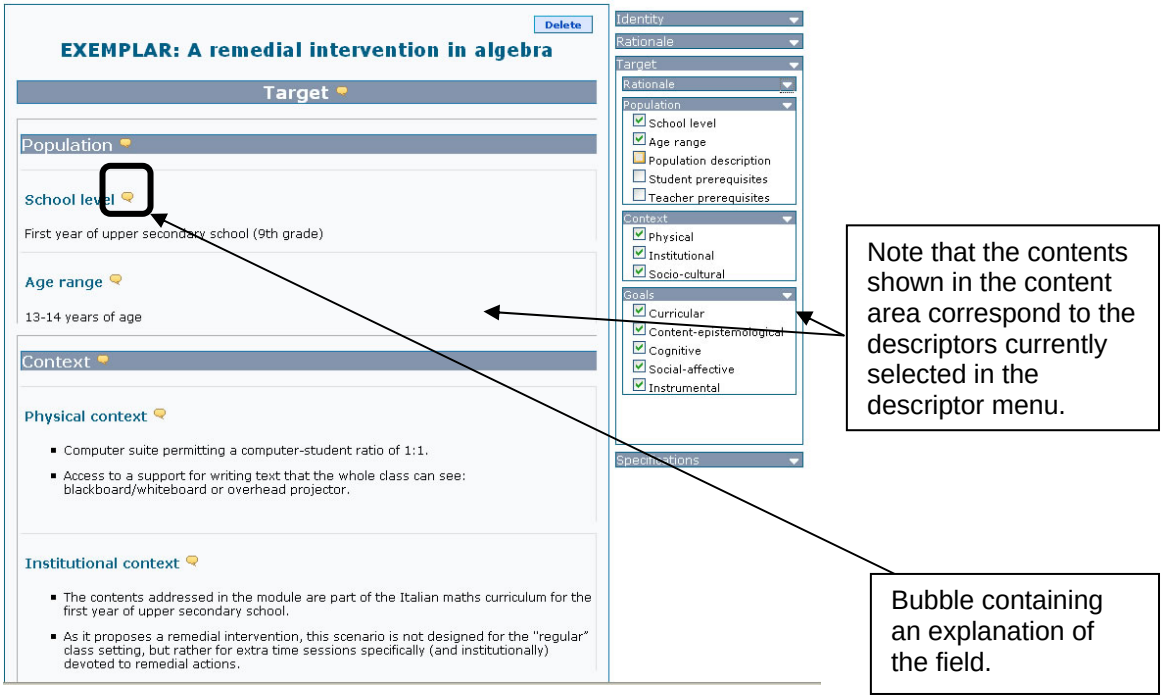

Delete
EXEMPLAR: A remedial intervention in algebra
Target
Population
School level
First year of upper secondary school (9th grade)
Age range
13-14 years of age
Context
Physical context
Computer suite permitting a computer-student ratio of 1:1.
Access to a support for writing text that the whole class can see: blackboard/whiteboard or overhead projector.
Institutional context
The contents addressed in the module are part of the Italian maths curriculum for the first year of upper secondary school.
As it proposes a remedial intervention, this scenario is not designed for the "regular" class setting, but rather for extra time sessions specifically (and institutionally) devoted to remedial actions.
Identity
Rationale
Target
Rationale
Population
School level
Age range
Population description
Student prerequisites
Teacher prerequisites
Context
Physical
Institutional
Socio-cultural
Goals
Curricular
Content-epistemological
Cognitive
Social-affective
Instrumental
Specifications
Note that the contents shown in the content area correspond to the descriptors currently selected in the descriptor menu.
Bubble containing an explanation of the field.

Figure 3

Select View in the structure manager allows you to set the focus at HiPP or SNiPP level.
When you enter a plan, the root SNiPP is selected by default and its contents are displayed in the content area. If you want to display a child SNiPP, simply click on the title in the structure manager: a red border will appear around this activated SNiPP, whose contents will be displayed in the central area (Figure 4).

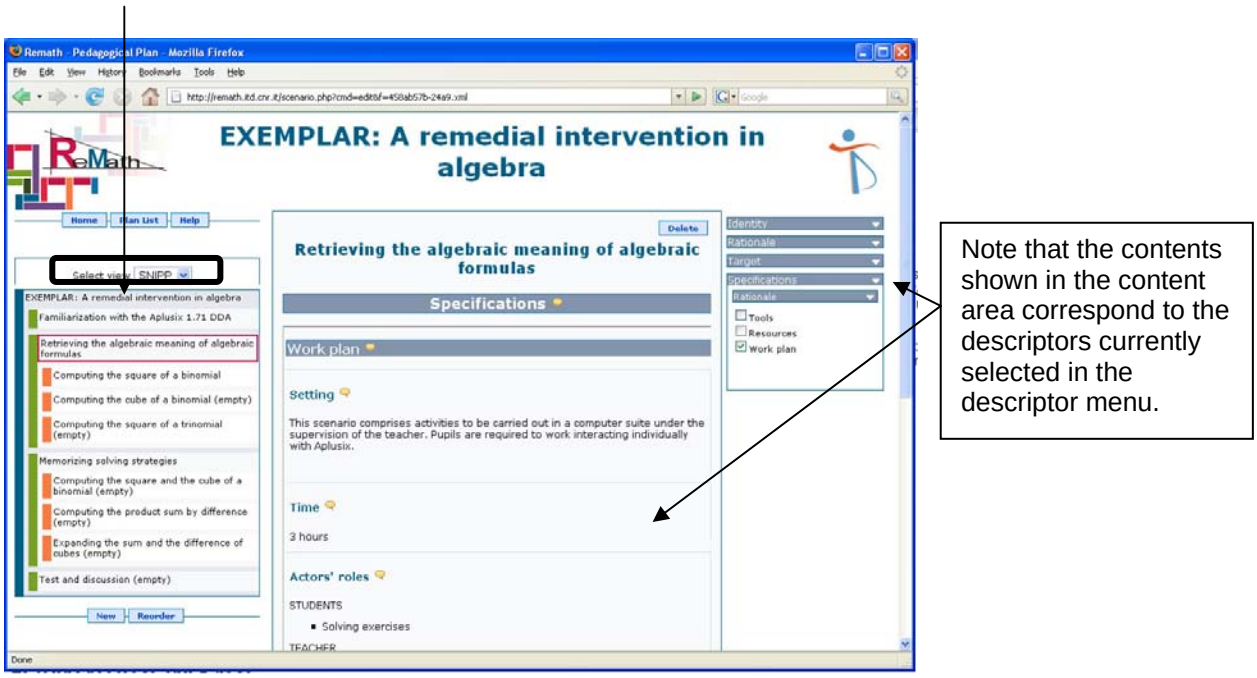

Remath - Pedagogical Plan - Mozilla Firefox
EXEMPLAR: A remedial intervention in algebra
Home
Plan List
Help
Select view SNIPP
EXEMPLAR: A remedial intervention in algebra
Familiarization with the Aplusix 1.71 DDA
Retrieving the algebraic meaning of algebraic formulas
Computing the square of a binomial
Computing the cube of a binomial (empty)
Computing the square of a trinomial (empty)
Memorizing solving strategies
Computing the square and the cube of a binomial (empty)
Computing the product sum by difference (empty)
Expanding the sum and the difference of cubes (empty)
Test and discussion (empty)
New
Reorder
Delete
Retrieving the algebraic meaning of algebraic formulas
Specifications
Work plan
Setting
This scenario comprises activities to be carried out in a computer suite under the supervision of the teacher. Pupils are required to work interacting individually with Aplusix.
Time
3 hours
Actors' roles
STUDENTS
Solving exercises
TEACHER
Identity
Rationale
Target
Specifications
Rationale
Tools
Resources
Work plan
Note that the contents shown in the content area correspond to the descriptors currently selected in the descriptor menu.

Figure 4

If you want an overview of an entire plan or HiPP, select the **HiPP** option in the **Select View** pull-down menu: the red border will enclose the root SNiPP (parent) and any associated SNiPPs (children), as shown in Figure 5.

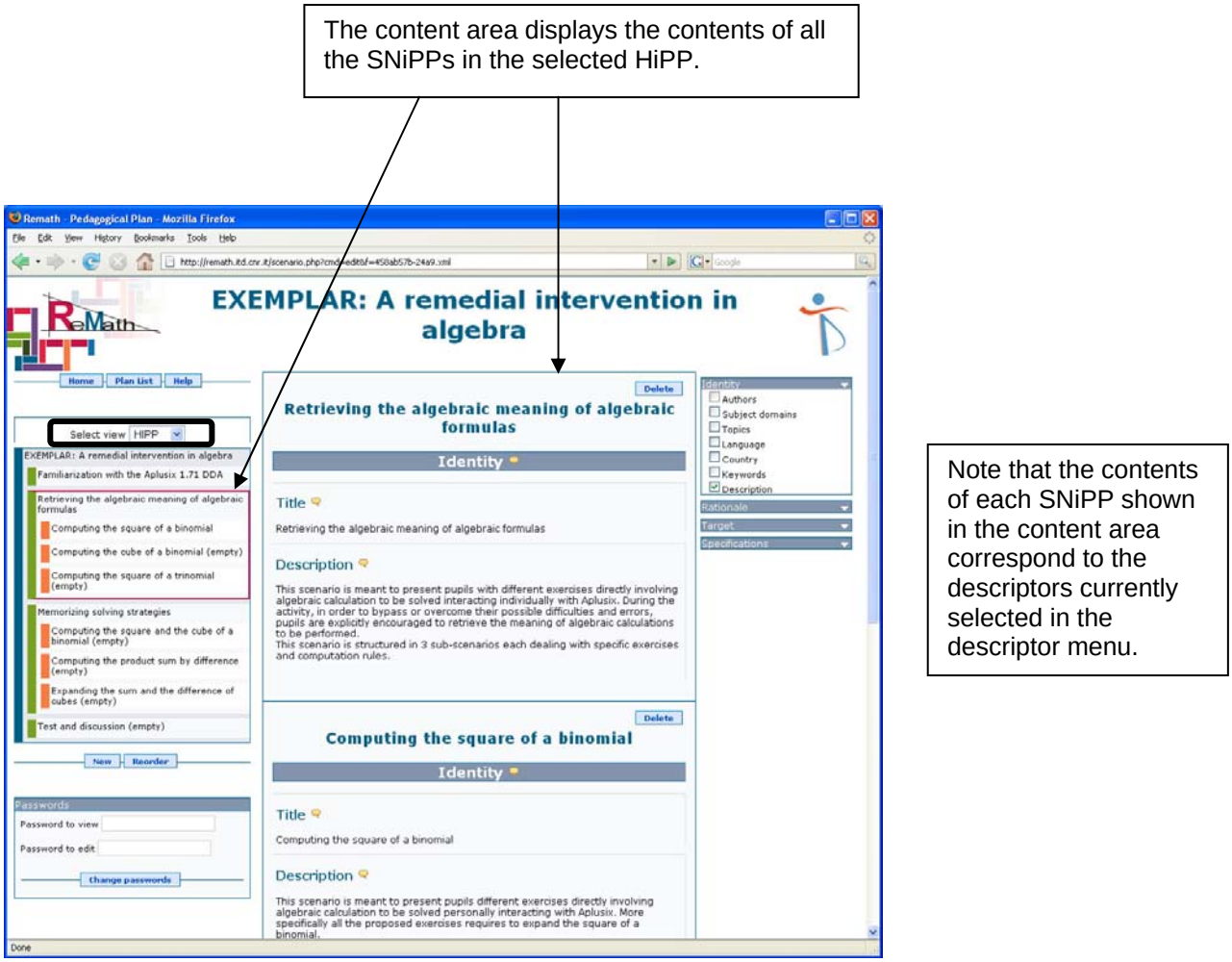

The content area displays the contents of all the SNiPPs in the selected HiPP.
Note that the contents of each SNiPP shown in the content area correspond to the descriptors currently selected in the descriptor menu.
EXEMPLAR: A remedial intervention in algebra
Retrieving the algebraic meaning of algebraic formulas
Computing the square of a binomial
Identity
Title
Description
Select view HIPP

Figure 5

Creating a new plan

To create a new plan, go to the home page (http://remath.itd.cnr.it), click **Editing** and then click the **New** button. A pop-up will ask you to enter the default "create plan" password, which is the name of your DDA written in lower case, i.e. alnuset, aplusix, casyopee, cruiser, mopix, machinelab. This will automatically become the password for accessing your plan. You can subsequently change the password for your new plan in the editor, but the default password for creating any new plan cannot be modified.
Enter the name of your new plan in the second pop-up box and click **OK** to confirm. The **Editor** will then open the new plan containing a single SNiPP with the name you entered. This is the root on which you will build up a HiPP by adding other SNiPPs (Figure 6).

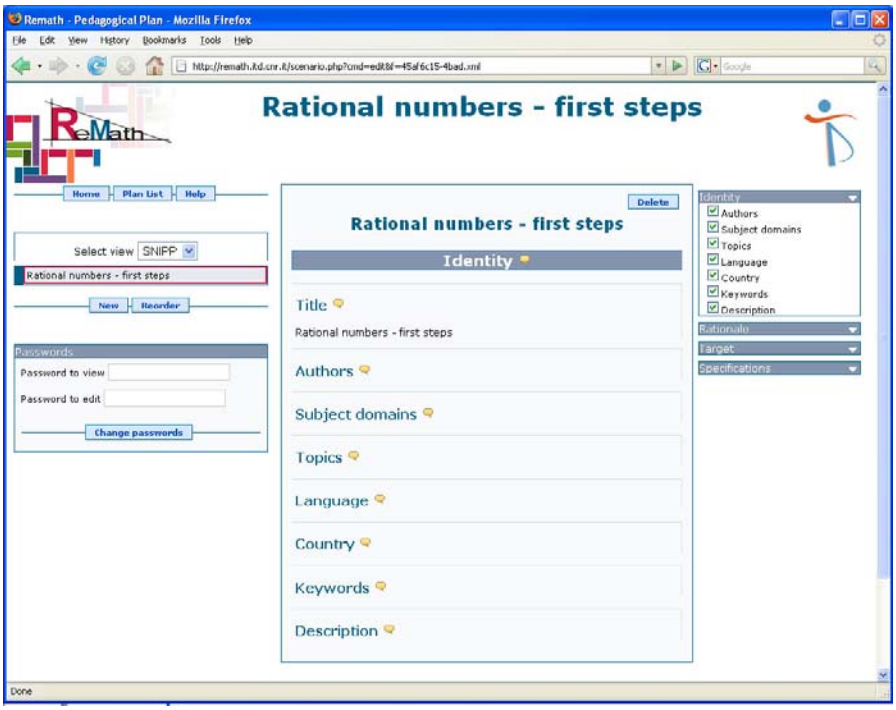


Figure 6

At this point you can begin adding contents to this first SNiPP (as described in "Entering contents") or you can start building the overall structure of your plan.
If you have already a clear idea of the overall structure of your plan, you can start it directly (see "Building the plan structure"); otherwise, you can input the contents of the parent SNiPP (as it is illustrated in "Inputting contents") and build the structure later on.

Building the plan structure

Building the structure of your plan involves adding SNiPPs and organizing them hierarchically and sequentially.
First of all, add a new SNiPP to your plan by clicking on the **New** button in the structure manager. Enter the name of the new SNiPP in the pop-up box and click **OK** to confirm.
This new SNiPP will appear at the bottom of the structure, and by default will be a "child" of the root (Figure 7).

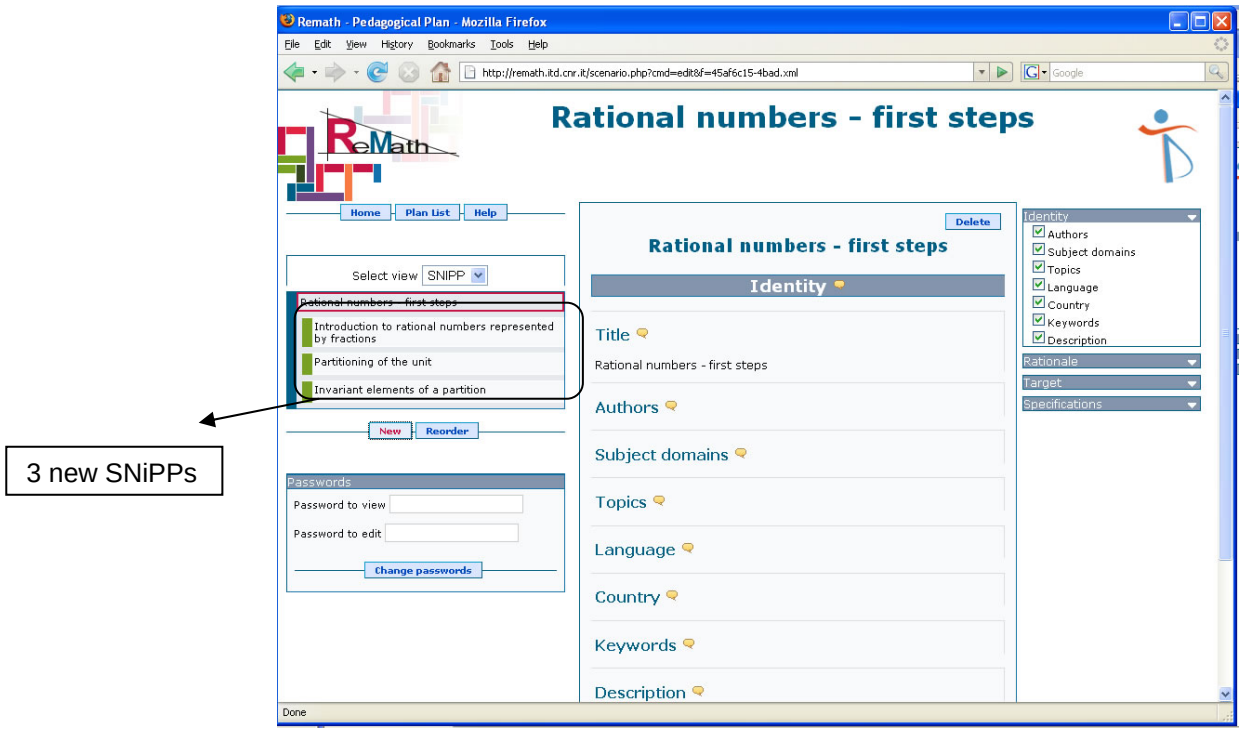


Figure 7

Note: theoretically, there is almost no limit to the number of SNiPPs that can be included in a sequence. Bear in mind however that SNiPPs contain all the learning resources needed for enactment, so a high number of resource-rich SNiPPs in a plan will make it computationally "heavy" and could effect the performance of the Pedagogical Plan Manager.

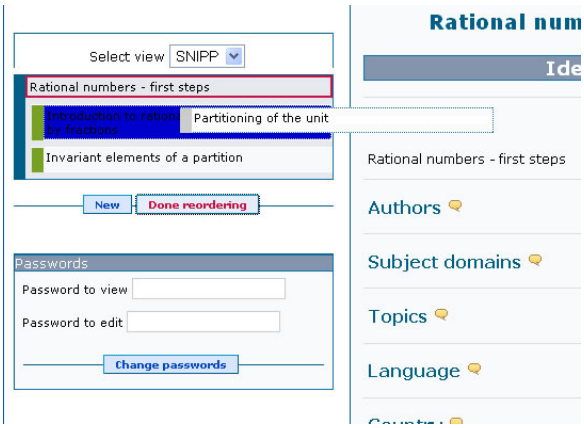
Create as many SNiPPs as you need and rearrange them to suit your purposes.

Modifying the plan structure

You can modify the structure of your plan in the structure manager. This allows you to change both the hierarchy and ordering within your plan, giving you the flexibility you need to create exactly the kind of structure you want.

Changing the hierarchy

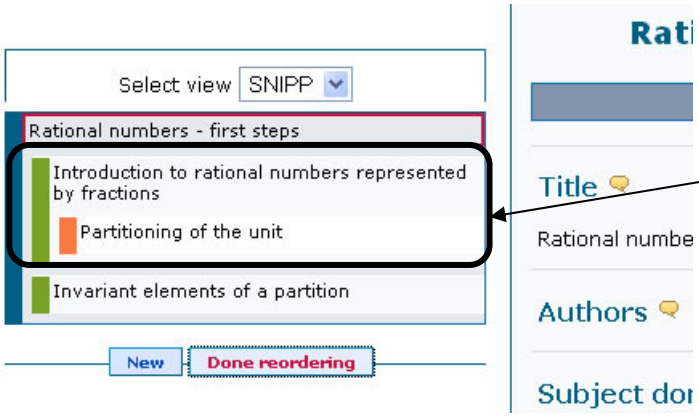
To change the hierarchy within your plan, first click the **Reorder** button in the structure manager. Now click on the SNiPP you want to shift and drag it up or down the plan map. You will notice that as you drag over another SNiPP, that SNiPP is highlighted in blue to indicate a potential target position (Figure 8).



The SNiPP named "*Partitioning of the unit*" is being moved to become a child of "*Introduction to rational number represented by fractions*".

Figure 8

If you drop on that target, your "uprooted" SNiPP will automatically become a child of this new parent, and will be positioned as the last child in the "family unit" (HiPP), i.e. after any siblings (Figure 9).



This is the result of the operation. A new HiPP has been created within your plan.

Figure 9

If you are not satisfied with the result, simply click on the SNiPP again and drag it to a new position. When you want to save the new plan structure, click on the **Done Reordering** button in the structure manager.

WARNING: if the SNiPP you want to shift has any child SNiPPs of its own (i.e. if it is the root of a HiPP), then these will be shifted en bloc with the parent, as a family unit.

Tip: when making modifications, it is best to hold SNiPPs on the right-hand side of the structure so that you can clearly see the target destination highlighted in blue.

Changing the order

When you drag and drop one SNiPP on another in the structure manager, the uprooted SNiPP will automatically be repositioned as the last child of the target parent, i.e. after any other siblings in the "family unit".
If you want to change the sequential order of SNiPPs at any given level in the hierarchy, you first need to identify the parent and then "shuffle" sibling SNiPPs via the parent until the desired sequence is obtained (Figures 10 and 11).

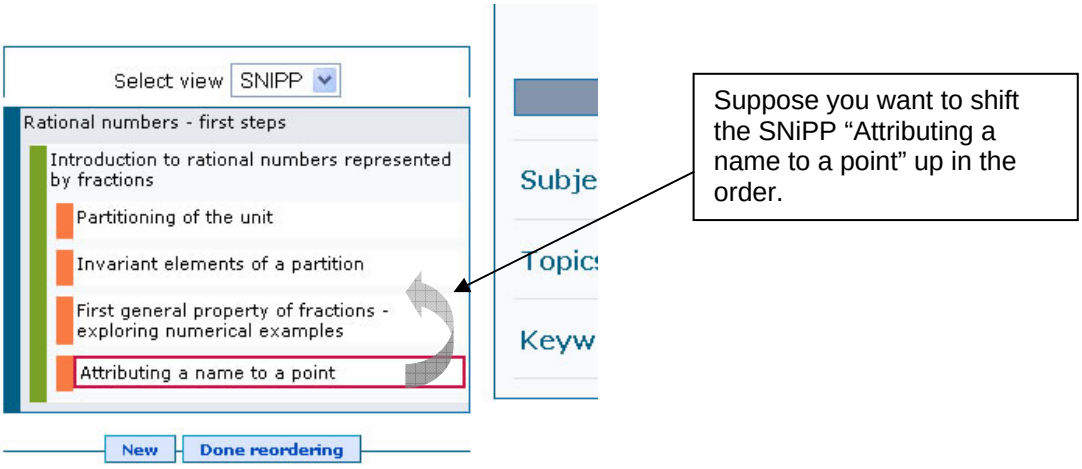
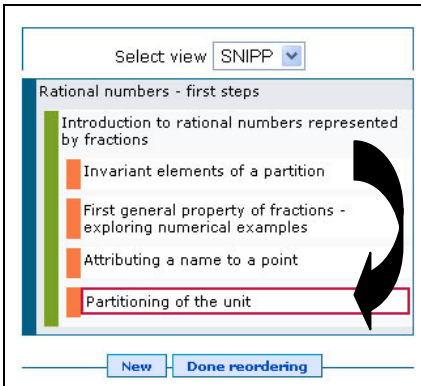
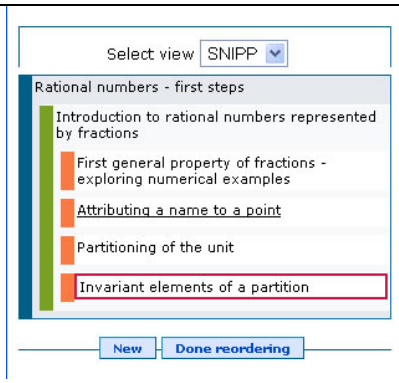

Select view SNIPP
Rational numbers - first steps
Introduction to rational numbers represented by fractions
Partitioning of the unit
Invariant elements of a partition
First general property of fractions - exploring numerical examples
Attributing a name to a point
New
Done reordering
Subje
Topic
Keyw
Suppose you want to shift the SNiPP "Attributing a name to a point" up in the order.

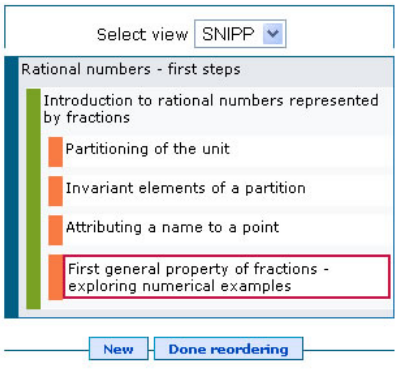
Figure 10


Select view SNIPP
Rational numbers - first steps
Introduction to rational numbers represented by fractions
Invariant elements of a partition
First general property of fractions - exploring numerical examples
Attributing a name to a point
Partitioning of the unit
New
Done reordering

Rather than moving the target SNiPP itself, go to the first sibling SNiPP ("Partitioning of the unit") and drag and drop that SNiPP over its parent, so that it goes to the bottom of the list.


Select view SNIPP
Rational numbers - first steps
Introduction to rational numbers represented by fractions
First general property of fractions - exploring numerical examples
Attributing a name to a point
Partitioning of the unit
Invariant elements of a partition
New
Done reordering

Do the same for the other siblings until you reach the desired order.


Select view SNIPP
Rational numbers - first steps
Introduction to rational numbers represented by fractions
Partitioning of the unit
Invariant elements of a partition
Attributing a name to a point
First general property of fractions - exploring numerical examples
New
Done reordering

This is the correct order.
Click on Done reordering to confirm.

Figure 11

This means that to shift a given SNiPP up the order, you will need to drag & drop a sibling onto the parent. That sibling will then go to the bottom and consequently "push" your SNiPP up the order. Repeat this action until your SNiPP is in the desired position.
Moving a SNiPP down the order involves dragging & dropping the SNiPP itself on the parent so that it goes to the bottom of the order (Figure 11).
To achieve complex reordering at a given level in the hierarchy, you need to perform suitable up or down shifts, remembering that in order to get a particular SNiPP into a given position, you may need to operate on the siblings.

Entering contents

To activate and edit a field in the content area, first ensure that its descriptor is checked in the descriptor menu. To activate a field for editing, click anywhere inside that field within the content area.
Three buttons will appear: **Edit** (see "Editing a text"), **Comment** (see "Adding comments to a field"), **Inherit** (see "Inheriting data").
Some fields are presented by default as lists. These fields have two extra buttons, **Add item** and **Reorder**, which allow you to enter or modify the list.

Editing contents

When the field is activated, click on the **Edit** button and begin editing. Use the options available in the toolbar to input and format text, and to insert images, hyperlinks and HTML code as well.
Click **OK** to save, otherwise the changes made while editing will be lost.

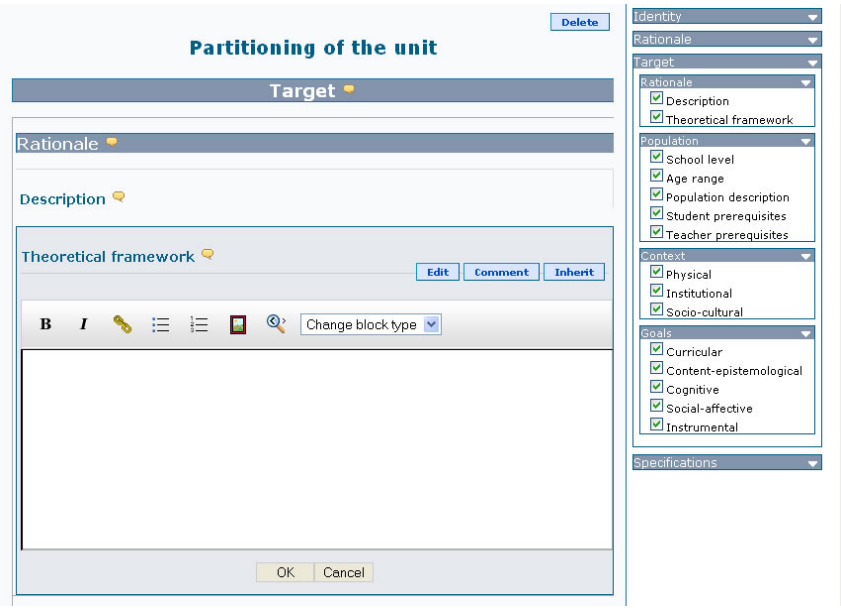


Figure 12

Note that if you paste text that is already formatted, the field editor will ask you if you want to clean the HTML code; click **OK** to confirm.

Adding comments to a field

You can add comments to any field in your plan. Click on the **Comment** button to add your comment in the field editor.
As with field contents, you can add text, images, hyperlinks and html code. Click **OK** to save the data. These will appear above the field contents as indented italic text.

Inheriting data

When editing a field, you can inherit automatically all the data *en bloc* from the corresponding field in the parent SNiPP. In this way you can construct your plan in a top-down, cascade fashion.
To inherit data, open field editor, click on the **Inherit** button and click **OK** to confirm.
The inherit function inherits all the data from a given parent field and data can only be edited at its source (inherited data appear in grey in the content area to show that they are inactive) (Figure 13).

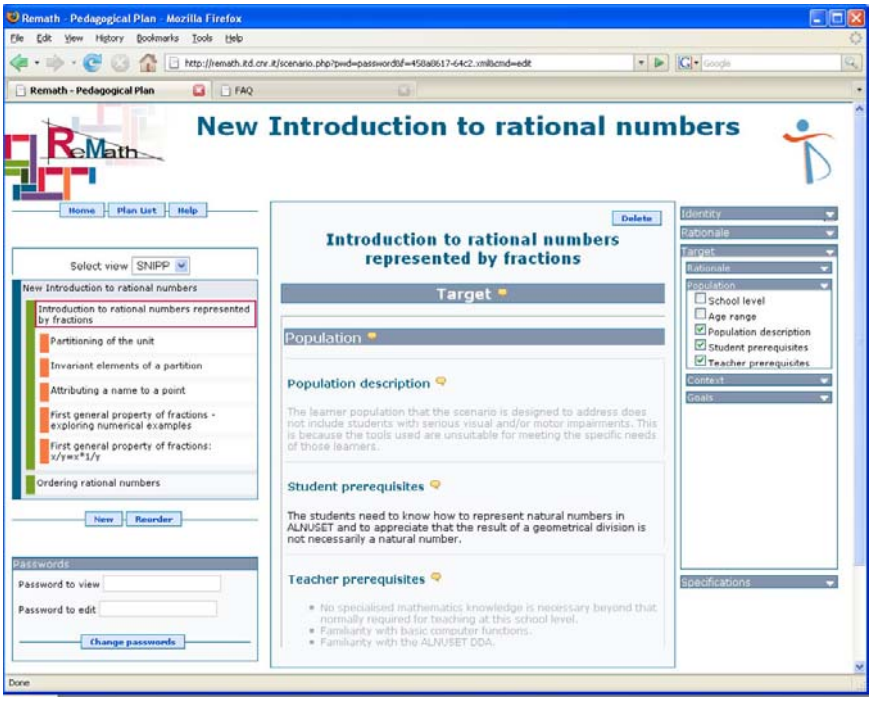

Remath - Pedagogical Plan - Mozilla Firefox
New Introduction to rational numbers
Home
Plan List
Help
Select view SNIPP
New Introduction to rational numbers
Introduction to rational numbers represented by fractions
Partitioning of the unit
Invariant elements of a partition
Attributing a name to a point
First general property of fractions - exploring numerical examples
First general property of fractions: x/y=x*1/y
Ordering rational numbers
New
Reorder
Passwords
Password to view
Password to edit
Change passwords
Delete
Introduction to rational numbers represented by fractions
Target
Population
Population description
The learner population that the scenario is designed to address does not include students with serious visual and/or motor impairments. This is because the tools used are unsuitable for meeting the specific needs of those learners.
Student prerequisites
The students need to know how to represent natural numbers in ALNUSET and to appreciate that the result of a geometrical division is not necessarily a natural number.
Teacher prerequisites
No specialised mathematics knowledge is necessary beyond that normally required for teaching at this school level.
Familiarity with basic computer functions.
Familiarity with the ALNUSET DDA.
Identity
Rationale
Target
Rationale
Population
School level
Age range
Population description
Student prerequisites
Teacher prerequisites
Context
Goals
Specifications
Done

Figure 13

Because **Inherit** lets you operate at the root of a HiPP, it simplifies the task of updating or adjusting your plan globally. For example, if you need to update the **Curricular Goals** of your plan in response to curriculum changes, you don't need to re-edit that field in each and every SNiPP of your plan: you simply update it at the root point in the plan where the inheritance chain begins.

Note that if you want to reuse data from a different field in the same SNiPP or from the same field in a non-parent SNiPP (e.g. a sibling), simply copy and paste that data using the field editor or your computer clipboard. In contrast with inherited data, data copied into another field can always be re-edited.

Note that the Inherit button is not available in:

- the root SNiPP of your plan (there are no corresponding parent fields to inherit from);
- the Identity>Title and Identity>Description fields;
- the Tools and the Resources field sets.

Note that you will need to refresh the browser page before you can edit the field you have inherited from.

Editing the "Tools" fields

In accordance with the specific needs of the ReMATH project, different fields are available for bringing to light the educational affordances of the DDAs to be used within pedagogical plans. The **Tools** field provides the opportunity for describing the set of tools that students are to use, which may include computational tools such as DDAs as well as those of non-computational type. Each individual tool can be described at different levels:

· **Tool** > **Description** is for general outlining of the tool;
· **Tool** > **Features** is for basic features or functionalities that the tool offers, e.g. drag and drop, line drawing, etc.;
· **Tool** > **Components** is for those cases where the tool has a distinct sub-environment (a microworld, an exercise type, etc.) - some tools are effectively clusters of such components;
· **Tool** > **Component Features** is for any features that are specific to a given component.

If you want to add a tool, go to **Tools** in the content area and click on **New Tool**.
Enter the name of the new tool in the pop-up window. Click **OK** and the fields for describing that new tool will open in the content area underneath any other tool description already in the SNiPP.
Provide a short description of the tool in the **Description** field or point to an online description.
Provide a link for accessing the tool, if it is available online (Figure 14).

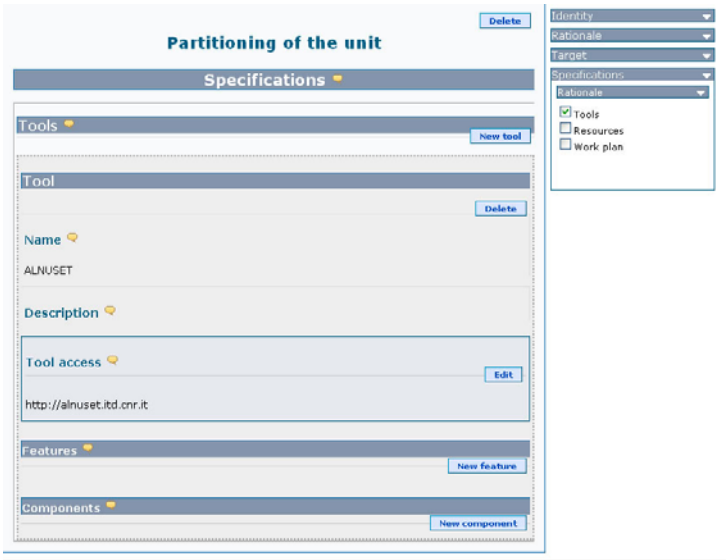


Figure 14

Choose whether you want to provide details at feature or component level and click on "**New feature**" or "**New component**" accordingly (Figure 14).
In the appropriate fields enter specific descriptions for each new feature or component (Figure 15).

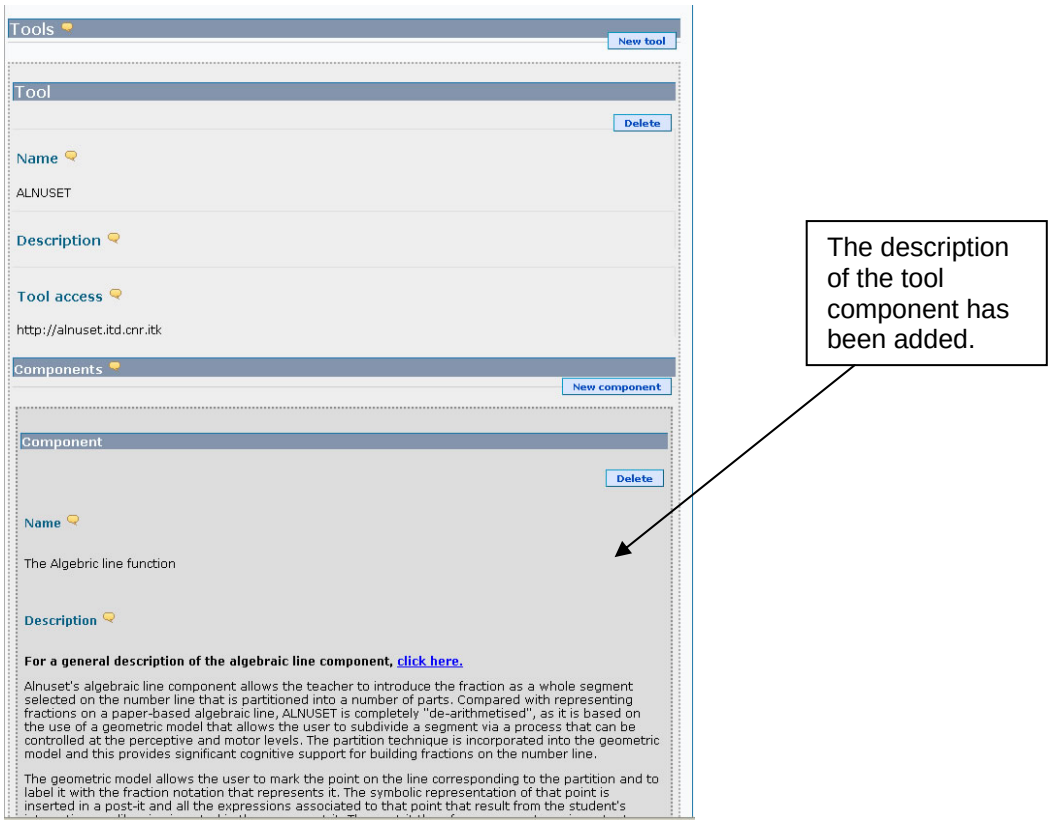

Tools
New tool
Tool
Delete
Name
ALNUSET
Description
Tool access
http://alnuset.itd.cnr.itk
Components
New component
Component
Delete
Name
The Algebric line function
Description
For a general description of the algebraic line component, click here.
Alnuset's algebraic line component allows the teacher to introduce the fraction as a whole segment selected on the number line that is partitioned into a number of parts. Compared with representing fractions on a paper-based algebraic line, ALNUSET is completely "de-arithmetised", as it is based on the use of a geometric model that allows the user to subdivide a segment via a process that can be controlled at the perceptive and motor levels. The partition technique is incorporated into the geometric model and this provides significant cognitive support for building fractions on the number line.
The geometric model allows the user to mark the point on the line corresponding to the partition and to label it with the fraction notation that represents it. The symbolic representation of that point is inserted in a post-it and all the expressions associated to that point that result from the student's
The description of the tool component has been added.

Figure 15

Note that for describing a tool in any detail beyond the general Description, you will need to adopt either the Tool>Features or Tool>Components/Features option: you cannot use both fields for the same tool in a given SNiPP. Indeed, when you create either a Feature or Component, the field for adding the other option will no longer appear in the content area (if you change your mind after creating the instance, simply delete it and start again).

Each time you add a new tool to a SNiPP its fields will appear after any description of tool/s already in the SNiPP.

Editing the "Resources" fields

The term Resources refers both to those that are needed for the activity to be carried out by students (input resources) and those that are produced as a result of an activity (output resources).
Input resources may include, for example, a text of a problem to be solved using a DDA, a worksheet, a table to be filled in, an assessment test, an article to be read, a web site to be visited, etc.
An output resource might be, for example, a completed worksheet or spreadsheet table, a text, a graphic representation, a discussion report. The output resource may be directly based on an input resource (e.g. input resource - blank worksheet with problem text: output resource - completed worksheet); conversely, it may be something produced from scratch (e.g. a report of an oral discussion).
You can provide an overall description of the resources for a SNiPP in the **Description** field. To add a new Input Resource, click on **New Input Resource** and enter the name in the pop-up window. A new resource will appear underneath any input resources already in the SNiPP. Enter the description of the resource in the **Description** field and then provide access to its contents by clicking on the **Resource contents** button. Three options will then be proposed:

- **Upload contents** (this allows you to upload a file from your computer to the server);

- **Create contents** (this opens the editor window for you to enter the resource contents directly, in the form of text, images, hyperlinks, etc.);
- **Link to Output Resource in external SNIPP** (this allows you to choose from a list of all the output resources created up to that moment in your plan) (Figure 16).

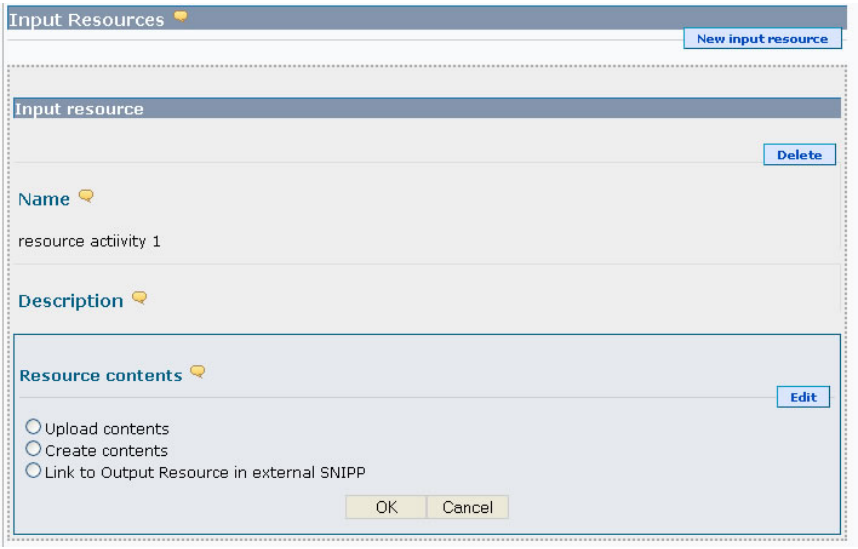


Figure 16

To add a new Output Resource, click on **New Output Resource**, enter a name in the pop-up window and provide a description in the **Description** field.

Editing an existing plan

To edit an existing pedagogical plan, go to the home page, click **Editor**, choose the title you want to edit from the list and enter the password. Now go to the structure manager, set **Select View** either to HiPP or SNiPP and click on the part of the plan you want to focus on.
If you select the SNiPP view and then click on any SNiPP in the plan, a red border will appear around that title in the structure map to indicated that it is active, and its contents will be displayed in the contents area.
If by contrast you select the HiPP view, then all the titles in that HiPP will become active and their the contents will be displayed.
To make editing easier, set the extendible menu on the right of the screen so that only those fields you want to edit are displayed.

Note that changes made in the content area will only appear in the structure manager when you have refreshed the browser page.